PATENT COOPERATION TREATY

From the
INTERNATIONAL PRELIMINARY EXAMINING AUTHORITY

To:

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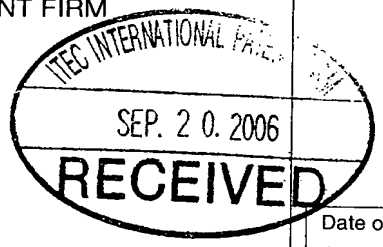

PCT

NOTIFICATION OF TRANSMITTAL OF THE INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

(PCT Rule 71.1)

Date of mailing *(day/month/year)*	13.09.2006
Applicant's or agent's file reference FNTYA062WO	**IMPORTANT NOTIFICATION**

International application No.	International filing date *(day/month/year)*	Priority date *(day/month/year)*
PCT/JP2005/006988	05.04.2005	07.04.2004

Applicant
TOYOTA JIDOSHA KABUSHIKI KAISHA et al.

1. The applicant is hereby notified that this International Preliminary Examining Authority transmits herewith the international preliminary report on patentability and its annexes, if any, established on the international application.

2. A copy of the report and its annexes, if any, is being transmitted to the International Bureau for communication to all the elected Offices.

3. Where required by any of the elected Offices, the International Bureau will prepare an English translation of the report (but not of any annexes) and will transmit such translation to those Offices.

4. **REMINDER**

The applicant must enter the national phase before each elected Office by performing certain acts (filing translations and paying national fees) within 30 months from the priority date (or later in some Offices) (Article 39(1)) (see also the reminder sent by the International Bureau with Form PCT/IB/301).

Where a translation of the international application must be furnished to an elected Office, that translation must contain a translation of any annexes to the international preliminary report on patentability. It is the applicant's responsibility to prepare and furnish such translation directly to each elected Office concerned.

For further details on the applicable time limits and requirements of the elected Offices, see Volume II of the PCT Applicant's Guide.

The applicant's attention is drawn to Article 33(5), which provides that the criteria of novelty, inventive step and industrial applicability described in Article 33(2) to (4) merely serve the purposes of international preliminary examination and that "any Contracting State may apply additional or different criteria for the purposes of deciding whether, in that State, the claimed inventions is patentable or not" (see also Article 27(5)). Such additional criteria may relate, for example, to exemptions from patentability, requirements for enabling disclosure, clarity and support for the claims.

Name and mailing address of the international preliminary examining authority:	Authorized Officer
European Patent Office - P.B. 5818 Patentlaan 2 NL-2280 HV Rijswijk - Pays Bas Tel. +31 70 340 - 2040 Tx: 31 651 epo nl Fax: +31 70 340 - 3016	Tsogka, Voula Tel. +31 70 340-3630

PATENT COOPERATION TREATY

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INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

(Chapter II of the Patent Cooperation Treaty)

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference FNTYA062WO	**FOR FURTHER ACTION**	See Form PCT/IPEA/416
International application No. PCT/JP2005/006988	International filing date *(day/month/year)* 05.04.2005	Priority date *(day/month/year)* 07.04.2004
International Patent Classification (IPC) or national classification and IPC INV. F01P11/14 F01P7/04		
Applicant TOYOTA JIDOSHA KABUSHIKI KAISHA et al.		

1. This report is the international preliminary examination report, established by this International Preliminary Examining Authority under Article 35 and transmitted to the applicant according to Article 36.
2. This REPORT consists of a total of 6 sheets, including this cover sheet.
3. This report is also accompanied by ANNEXES, comprising:
   a. ☒ *sent to the applicant and to the International Bureau)* a total of 7 sheets, as follows:
      ☒ sheets of the description, claims and/or drawings which have been amended and are the basis of this report and/or sheets containing rectifications authorized by this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions).
      ☐ sheets which supersede earlier sheets, but which this Authority considers contain an amendment that goes beyond the disclosure in the international application as filed, as indicated in item 4 of Box No. I and the Supplemental Box.
   b. ☐ *(sent to the International Bureau only)* a total of (indicate type and number of electronic carrier(s)) , containing a sequence listing and/or tables related thereto, in electronic form only, as indicated in the Supplemental Box Relating to Sequence Listing (see Section 802 of the Administrative Instructions).

4. This report contains indications relating to the following items:

☒	Box No. I	Basis of the report
☐	Box No. II	Priority
☐	Box No. III	Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
☐	Box No. IV	Lack of unity of invention
☒	Box No. V	Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
☐	Box No. VI	Certain documents cited
☒	Box No. VII	Certain defects in the international application
☒	Box No. VIII	Certain observations on the international application

Date of submission of the demand	Date of completion of this report
27.01.2006	13.09.2006
Name and mailing address of the international preliminary examining authority: European Patent Office - P.B. 5818 Patentlaan 2 NL-2280 HV Rijswijk - Pays Bas Tel. +31 70 340 - 2040 Tx: 31 651 epo nl Fax: +31 70 340 - 3016	Authorized officer Paquay, Jeannot Telephone No. +31 70 340-3944

INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

International application No.
PCT/JP2005/006988

Box No. I Basis of the report

1. With regard to the **language**, this report is based on

   ☒ the international application in the language in which it was filed

   ☐ a translation of the international application into , which is the language of a translation furnished for the purposes of:
   - ☐ international search (under Rules 12.3(a) and 23.1(b))
   - ☐ publication of the international application (under Rule 12.4(a))
   - ☐ international preliminary examination (under Rules 55.2(a) and/or 55.3(a))

2. With regard to the **elements*** of the international application, this report is based on *(replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report)*:

Description, Pages

1-20	as originally filed

Claims, Numbers

1-18	received on 27.01.2006 with letter of 27.01.2006

Drawings, Sheets

1/2, 2/2	as originally filed

☐ a sequence listing and/or any related table(s) - see Supplemental Box Relating to Sequence Listing

3. ☐ The amendments have resulted in the cancellation of:
   - ☐ the description, pages
   - ☐ the claims, Nos.
   - ☐ the drawings, sheets/figs
   - ☐ the sequence listing *(specify)*:
   - ☐ any table(s) related to sequence listing *(specify)*:

4. ☐ This report has been established as if (some of) the amendments annexed to this report and listed below had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).
   - ☐ the description, pages
   - ☐ the claims, Nos.
   - ☐ the drawings, sheets/figs
   - ☐ the sequence listing *(specify)*:
   - ☐ any table(s) related to sequence listing *(specify)*:

* *If item 4 applies, some or all of these sheets may be marked "superseded."*

INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

International application No.
PCT/JP2005/006988

Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Yes:	Claims	
	No:	Claims	1-18
Inventive step (IS)	Yes:	Claims	
	No:	Claims	1-18
Industrial applicability (IA)	Yes:	Claims	1-18
	No:	Claims	

2. Citations and explanations (Rule 70.7):

see separate sheet

Box No. VII Certain defects in the international application

The following defects in the form or contents of the international application have been noted:

see separate sheet

Box No. VIII Certain observations on the international application

The following observations on the clarity of the claims, description, and drawings or on the question whether the claims are fully supported by the description, are made:

see separate sheet

Re Item V.

1 Reference is made to the following document:
D1 : US 4 779 577 A (RITTER ET AL.) 25 October 1988 (1988-10-25)

2 The present application does not meet the criteria of Article 33(1) PCT, because the subject-matter of the claims 1-18 is not new in the sense of Article 33(2) PCT.

2.1 To claim 1: Document D1 discloses (*the references in parentheses applying to this document*) a cooling system (*among others: heat exchanger 6, condenser 19*) that cools down multiple different heat generators (*internal combustion engine 3, air conditioner 20*), said cooling system comprising:

- multiple cooling circuits (*4, 5 and 6 for the engine coolant, the circuit for the air conditioner 20 and the liquid circuit for the automatic transmission, as mentioned in column 3, line 50 and 51*) that adopt multiple different heat exchange media to cool down the multiple different heat generators;
- a heat exchange module (*6, 19*) that uses outside air to cool down the multiple different heat exchange media of said multiple cooling circuits (*4, 5 and 6 for the engine coolant, the circuit for the air conditioner 20 and the liquid circuit for the automatic transmission, as mentioned in column 3, line 50 and 51*);
- an outside air supply regulation module (*9-13*) that regulates a supply of the outside air used by said heat exchange module to cool down the multiple different heat exchange media; and
- a control module (*15*) that drives and controls said outside air supply regulation module in response to control signals input from communication related to cooling down the multiple heat generators (*the signals that control device 15 receives and sends, as mentioned in column 3, lines 45-62, are a form of communication*) in a normal state, with no abnormality in communication related to cooling down the multiple heat generators, while driving and controlling said outside air supply regulation module to increase (*column 5, line 59-61:" the flaps are simultaneously completely opened and the blower is run at maximum rpm"*) the supply of the outside air in an abnormal state (*"failure of sensor", as mentioned in column 5, line 55*) with an abnormality in communication related to cooling down the multiple

heat generators (*the "failure of sensor" means that the system cannot communicate certain important physical values to the control module*).

As document D1 shows all the features of the first claim, the subject-matter of the first claim is not new (Article 33(2) PCT).

2.2 To the claims 2 to 9 document D1 mentions:

- the maximum air supply capacity of the second claim (column 5, line 60),
- the temperature measurement unit of claim 3 (21, 24 and 25),
- the working state detecting unit as claimed in claim 4 (unit 15),
- the in claim 5 claimed cooling fan (18),
- the water coolant like claimed in claim 6 (column 12, line 24),
- the radiator (6) from claim 7,
- the in claim 8 claimed internal combustion engine and
- the method of claim 9 (column 5, lines 51-63).

In view of this, the subject-matter of the claims 2 to 9 is not new. (Article 33(2)PCT).

2.3 To the claims 10 to 16: In these claims a motor vehicle is claimed. The motor vehicle contains the features as claimed in the claims 1 to 9. As the document D1 shows also the motor vehicle, the subject-matter of the claims 10-16 is not new either (Article 33(2) PCT).

2.4 To claim 17: In this claim, a method for controlling a cooling system with the features of claim 1 is claimed. The features of claim 1 are not new (see point 2.1 of this communication). From column 5, lines 51-63 of document D1, it is clear, that document D1 does not only show the device, but also the method. Therefore the subject-matter of the claims 17 is not new (Article 33(2) PCT).

2.5 To claim 18: The subject-matter of claim 18 is not new because the maximum supply of air is known from document D1, column 5, line 60.

Re Item VII.

1 Independent claims 1, 10 and 17 are not in the two-part form in accordance with Rule 6.3(b) PCT, which in the present case would be appropriate, with those features known in combination from the prior art (document D1) being placed in the preamble (Rule 6.3(b)(I) PCT) and with the remaining features being included in the characterising part (Rule 6.3(b)(ii) PCT).

2 The features of the claims are not provided with reference signs placed in parentheses (Rule 6.2(b) PCT).

Re Item VIII.

Although claims 1 and 10 have been drafted as separate independent claims, they appear to relate effectively to the same subject-matter and to differ from each other only with regard to the definition of the subject-matter for which protection is sought and in respect of the terminology used for the features of that subject-matter. The aforementioned claims therefore lack conciseness and as such do not meet the requirements of Article 6 PCT.

Claims:

1. (amended) A cooling system that cools down multiple different heat generators, said cooling system comprising:

multiple cooling circuits that adopt one identical heat exchange medium or multiple different heat exchange media to cool down the multiple different heat generators;

a heat exchange module that uses outside air to cool down the identical heat exchange medium or the multiple different heat exchange media of said multiple cooling circuits;

an outside air supply regulation module that regulates a supply of the outside air used by said heat exchange module to cool down the identical heat exchange medium or the multiple different heat exchange media; and

a control module that drives and controls said outside air supply regulation module in response to control signals input from communication related to cooling down the multiple heat generators in a normal state with no abnormality in communication related to cooling down the multiple heat generators, while driving and controlling said outside air supply regulation module to increase the supply of the outside air in an abnormal state with an abnormality in communication related to cooling down the multiple heat generators.

2. A cooling system in accordance with claim 1, wherein

said control module drives and controls said outside air supply regulation module to supply the outside air at a maximum supply capacity of said outside air supply regulation module in the abnormal state.

3. A cooling system in accordance with claim 1, said cooling system further comprising:

temperature measurement units that respectively measure temperatures of the identical heat exchange medium or the multiple different heat exchange media used in said multiple cooling circuits,

wherein the control signals input from said multiple cooling circuits are based on the temperatures measured by said temperature measurement units.

4. A cooling system in accordance with claim 1, said cooling system further comprising:

working state detection units that respectively detect working states of said multiple different heat generators,

wherein the control signals input from said multiple cooling circuits are based on the working states detected by said working state detection units.

5. A cooling system in accordance with claim 1, wherein said outside air supply regulation module comprises a cooling fan.

6. A cooling system in accordance with claim 1, wherein the identical heat exchange medium or the multiple different heat exchange media include at least one of water and a coolant.

7. A cooling system in accordance with claim 1, wherein said heat exchange module comprises a radiator.

8. A cooling system in accordance with claim 1, wherein said multiple different heat generators include at least one of an internal combustion engine, a motor, a generator, and an inverter.

9. A cooling system in accordance with claim 1, said cooling system further comprising:

a heat generator control unit that controls at least one of the multiple different heat generators,

wherein said control module detects the abnormal state in the event of failed data transmission to and from said heat generator control unit or in the event of failed communication with said heat generator control unit.

10. (amended) A motor vehicle with multiple different heat generators mounted thereon, said motor vehicle comprising:

multiple cooling circuits that adopt one identical heat exchange medium or multiple different heat exchange media to

cool down the multiple different heat generators;

a heat exchange module that uses outside air to cool down the identical heat exchange medium or the multiple different heat exchange media of said multiple cooling circuits;

an outside air supply regulation module that regulates a supply of the outside air used by said heat exchange module to cool down the identical heat exchange medium or the multiple different heat exchange media; and

a control module that drives and controls said outside air supply regulation module in response to control signals input from communication related to cooling down the multiple heat generators in a normal state with no abnormality in communication related to cooling down the multiple heat generators, while driving and controlling said outside air supply regulation module to increase the supply of the outside air in an abnormal state with an abnormality in communication related to cooling down the multiple heat generators.

11. (amended) A motor vehicle in accordance with claim 10, wherein said control module drives and controls said outside air supply regulation module to supply the outside air at a maximum supply capacity of said outside air supply regulation module in the abnormal state.

12. (amended) A motor vehicle in accordance with claim 10, said motor vehicle further comprising:

temperature measurement units that respectively measure temperatures of the identical heat exchange medium or the multiple different heat exchange media used in said multiple cooling circuits,

wherein the control signals input from said multiple cooling circuits are based on the temperatures measured by said temperature measurement units.

13. (amended) A motor vehicle in accordance with claim 10, said motor vehicle further comprising:

working state detection units that respectively detect working states of said multiple different heat generators,

wherein the control signals input from said multiple cooling circuits are based on the working states detected by said working state detection units.

14. (amended) A motor vehicle in accordance with claim 10, wherein said outside air supply regulation module comprises a cooling fan,

the identical heat exchange medium or the multiple different heat exchange media include at least one of water and a coolant, and

said heat exchange module comprises a radiator.

15. (amended) A motor vehicle in accordance with claim 10, wherein said multiple different heat generators include at

least one of an internal combustion engine, a motor, a generator, and an inverter.

16. (amended) A motor vehicle in accordance with claim 10, said motor vehicle further comprising:

a heat generator control unit that controls at least one of the multiple different heat generators,

wherein said control module detects the abnormal state in the event of failed data transmission to and from said heat generator control unit or in the event of failed communication with said heat generator control unit.

17. (Amended) A control method of a cooling system that cools down multiple different heat generators, said cooling system comprising: multiple cooling circuits that adopt one identical heat exchange medium or multiple different heat exchange media to cool down the multiple different heat generators; a heat exchange module that uses outside air to cool down the identical heat exchange medium or the multiple different heat exchange media of said multiple cooling circuits; and an outside air supply regulation module that regulates a supply of the outside air used by said heat exchange module to cool down the identical heat exchange medium or the multiple different heat exchange media, said control method comprising the steps of:

driving and controlling said outside air supply

regulation module in response to control signals input from communication related to cooling down the multiple heat generators in a normal state with no abnormality in communication related to cooling down the multiple heat generators, while driving and controlling said outside air supply regulation module to increase the supply of the outside air in an abnormal state with an abnormality in communication related to cooling down the multiple heat generators.

18. (amended) A control method of a cooling system in accordance with claim 17, said control method comprising the step of:

driving and controlling said outside air supply regulation module to supply the outside air at a maximum supply capacity of said outside air supply regulation module in the abnormal state.